

3 applying an overlapped reversible wavelet transform to the input data to
4 produce a series of coefficients; and
5 compressing the series of coefficients into data representing a compressed
6 version of the input data, including context modeling bits of each of
7 the series of coefficients based on known coefficients in other
8 frequency bands and neighboring coefficients in the same
9 frequency band.

1 6. (Three Times Amended) The method defined in Claim 1 wherein
2 [the step of] compressing comprises performing bit significance embedding on
3 the series of coefficients.

1 7. (Amended) The method defined in Claim 1 further comprising [the
2 steps of]:

3 decompressing the losslessly compressed version of the input data into
4 transformed signals; and
5 generating the input data from the transformed signals into a
6 reconstructed version of the input data using an inverse reversible
7 wavelet transform.

1 8. (Three Times Amended) A method for decoding data into original
2 data comprising [the steps of]:

3 decompressing a compressed version of input data into a plurality
4 of transformed signals, including context modeling bits of the
5 plurality of transformed signals based on known transformed
6 signals in other frequency bands and neighboring transformed
7 signals in the same frequency band; and

8 generating a reconstructed version of original data from the
9 plurality of transformed signals with an overlapped inverse
10 reversible wavelet transform.

1 *Mr G3* 12. (Three Times Amended) A method for processing input data
2 comprising [the steps of]:
3 generating a first plurality of transformed signals in response to the input
4 data with a reversible overlapped wavelet transform using a first
5 pair of non-minimal length reversible filters;
6 compressing the first plurality of transformed signals into data
7 representing a compressed version of the input data, including
8 context modeling the first plurality of transformed signals based on
9 known transformed signals in other frequency bands and
10 neighboring transformed signals in the same frequency band;
11 decompressing the compressed version of the input data into a second
12 plurality of transformed signals; and
13 generating the input data from the second plurality of transformed signals
14 into a reconstructed version of the input data with an inverse
15 reversible overlapped wavelet transform using a second pair of
16 non-minimal length reversible filters.

1 13. (Three Times Amended) A method for encoding input data
2 comprising [the steps of]:
3 transform coding the input data into a series of coefficients with an
4 overlapped reversible wavelet transform; and
5 embedded coding the series of coefficients, including the steps of ordering
6 the series of coefficients, performing bit significance embedding on

7 the series of coefficients, wherein a first type of embedded coding is
8 performed on a first portion of the data and a second type of
9 embedded coding is performed on a second portion of the data
10 using context modeling based upon known coefficients in other
11 frequency bands and neighboring coefficients in the same
12 frequency band.

1 16. (Amended) The method defined in Claim 13 wherein [the step of]
2 embedded coding comprises formatting the series of coefficients into sign-
3 magnitude format.

1 17. (Three Times Amended) A method for encoding input data
2 comprising [the steps of]:
3 transforming input data into a series of coefficients with an overlapped
4 reversible wavelet transform;
5 converting the series of coefficients into sign-magnitude format to
6 produce a series of formatted coefficients;
7 coding a first portion of the series of coefficients using a first type of
8 embedded coding to produce a first bit stream;
9 coding a second portion of the series of formatted coefficients using a
10 second type of embedded coding that models data using known
11 coefficients in other frequency bands and neighboring coefficients
12 in the same frequency to produce a second bit stream; and
13 coding the first bit stream and second bit stream into a single bit stream.

1 32. (Amended) A decoder for decoding input data comprising:

2 a decompressor to decompress a compressed version of input data into a
3 plurality of coefficients using context modeling based on known
4 coefficients in other frequency bands and neighboring coefficients
5 in the same frequency; and
6 an overlapped inverse reversible wavelet transform coupled to the
7 decompressor to generate a reconstructed version of original data
8 from the plurality of coefficients.

1 33. (Amended) The method defined in Claim 1 wherein [the step of]
2 applying an overlapped reversible wavelet transform to the input data comprises
3 applying non-minimal length reversible filters to produce the series of
4 coefficients.

1 34. (Amended) The method defined in Claim 8 wherein [the step of]
2 generating a reconstructed version of the original data comprises applying non-
3 minimal length reversible filters to produce the series of coefficients.

1 35. (Amended) The method defined in Claim 13 wherein [the step of]
2 transformed coding comprises applying a pair of non-minimal length reversible
3 filters to transform code the input data into the series of coefficients.

1 36. (Amended) The method defined in Claim 17 wherein [the step of]
2 transformed coding comprises applying a pair of non-minimal length reversible
3 filters to transform code the input data into the series of coefficients.

1 Please add the following new claims.

1 44. (New) The method defined in Claim 1 wherein the overlapped
2 reversible wavelet transform is an efficient reversible transform in that it has its
3 determinant is equal to 1.

1 45. (New) The method defined in Claim 8 wherein the overlapped
2 reversible wavelet transform is an efficient reversible transform in that its
3 determinant is equal to 1.

1 46. (New) The method defined in Claim 12 wherein the overlapped
2 reversible wavelet transform is an efficient reversible transform in that its
3 determinant is equal to 1.

1 47. (New) The method defined in Claim 13 wherein the overlapped
2 reversible wavelet transform is an efficient reversible transform in that its
3 determinant is equal to 1.

1 48. (New) The method defined in Claim 17 wherein the overlapped
2 reversible wavelet transform is an efficient reversible transform in that its
3 determinant is equal to 1.

1 49. (New) The encoder defined in Claim 22 wherein the reversible
2 wavelet filter performs an overlapped reversible wavelet transform this is
3 efficient in that its determinant is equal to 1.

1 50. (New) The decoder defined in Claim 32 wherein the overlapped
2 inverse reversible wavelet transform is an efficient reversible transform in that its
3 determinant is equal to 1.